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☐ 1. Document ID: US 20050019618 A1

AB: A method for producing a set gypsum-containing product comprising an interlocking matrix of set gypsum wherein said method comprises applying to said set gypsum one or more enhancing materials selected from the group consisting of phosphoric acid; condensed phosphoric acids, each of which comprises 2 or more phosphoric acid units; and salts or ions of condensed phosphates, each of which comprises 2 or more phosphate units, and monobasic salts or monovalent ions of orthophosphates.

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KWIC	Draw. Des
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☐ 2. Document ID: US 20040231916 A1

AB: An acoustical panel comprising a continuous phase of an interlocking set gypsum matrix and a method of preparing an acoustical panel are disclosed.

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KWIC	Draw. Des
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☐ 3. Document ID: US 20040182286 A1

AB: Disclosed is an improved alpha calcium sulfate hemihydrate. Methods of producing an improved powdered calcium sulfate hemihydrate (CaSO.sub.4.1/2H.sub.2O) [alpha-type] compound are disclosed, at least one method including forming calcium sulfate dihydrate (CaSO.sub.4.2H.sub.2O) into a briquette under high pressure, calcining the briquette to transform the calcium sulfate dihydrate to calcium sulfate hemihydrate [alpha-type], drying the calcium sulfate hemihydrate [alpha-type] briquette, and optionally grinding the briquette. Also disclosed are methods of producing an improved gypsum plaster including producing the disclosed powdered calcium sulfate hemihydrate [alpha-type] and mixing the powdered calcium sulfate hemihydrate [alpha-type] with water.

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KWIC	Draw. Des
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☐ 4. Document ID: US 20040026002 A1

AB: A method of making a gypsum board includes mixing together gypsum and water in a mixer to form a gypsum slurry; discharging the gypsum slurry onto a first facing sheet; laying a second facing sheet on top of the discharged gypsum slurry; passing the gypsum slurry and facing sheets through a forming station to form the slurry to a desired thickness; allowing the formed gypsum slurry to set; removing at least one of the facing sheets from the set gypsum; cutting the set gypsum into boards; and drying the cut gypsum boards.

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KWIC	Draw. Des
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☐ 5. Document ID: US 20030232182 A1

AB: The present invention relates to a gypsum board having a nonwoven liner and a gypsum core. The gypsum board of the present invention has a high work to break, resulting in a gypsum board product that has a high resistance to abuse in use. The gypsum board of the invention is also more flexible and more resistant to water and fire than paper-lined gypsum board, and does not contain nutrients that support mold growth.

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KWIC	Draw. Des
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☐ 6. Document ID: US 20030154888 A1

AB: The invention provides a set gypsum-containing product having increased resistance to permanent deformation and a method for preparing it comprising forming a mixture of a calcium sulfate material, water, and an appropriate amount of one or more enhancing materials chosen from condensed phosphoric acids, each of which comprises 2 or more phosphoric acid units; and salts or ions of condensed phosphates, each of which comprises 2 or more phosphate units. The mixture is then maintained under conditions sufficient for the calcium sulfate material to form a set gypsum material.

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KWIC	Draw. Des
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☐ 7. Document ID: US 20030138616 A1

AB: A process for making an improved gypsum/wood fiber board is described. Products resulting from the process are also described. The process comprises adding a diisocyanate, specifically methylenediphenyldiisocyanate (MDI) to an aqueous slurry of calcium sulfate material and cellulosic fibers, where the MDI is added as an

emulsion stable in the conditions in which the slurry is maintained. The process further includes passing the MDI containing slurry onto a flat porous forming surface to form a filter cake; removing a substantial portion of the water from the filter cake through the porous surface; pressing the filter cake to form a board and remove additional water; and drying the board to remove the remaining free water.

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KWIC	Drawn Des
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☐ 8. Document ID: US 20030118803 A1

AB: A composition comprising a mixture of a calcium sulfate material, water, and a tetrametaphosphate compound is disclosed. Desirably, the inclusion of the tetrametaphosphate compound (e.g., salt or ion) in a pre-set treatment of a calcium sulfate material enhances the resistance to permanent deformation (e.g., sag), dimensional stability, and/or compressive strength of the composition while also preferably avoiding any significant retardive effect on the rate of hydration of calcined gypsum to calcium sulfate dihydrate. A set gypsum-containing product and a method for producing a set gypsum-containing product having increased resistance to permanent deformation are also disclosed.

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KWIC	Drawn Des
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☐ 9. Document ID: US 20030100648 A1

AB: A composition and method for treating a set gypsum-containing material are disclosed. The composition is formed from at least water at least one trimetaphosphate salt, at least one monobasic phosphate salt, and at least one acyclic polyphosphate salt having at least three phosphate units. The method comprises applying to a set gypsum material at least two of the following inorganic phosphates: at least one monobasic phosphate salt, at least one trimetaphosphate salt, and at least one acyclic polyphosphate salt having at least three phosphate units. The method can be for inhibiting re-calcination of a set gypsum containing material, and/or for enhancing the strength, surface hardness, paintability, abrasion resistance, and/or water erosion resistance of a set gypsum-containing material. Also disclosed is a method of making a set gypsum-containing material.

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KWIC	Drawn Des
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☐ 10. Document ID: US 20030092784 A1

AB: A method and composition for polymer-reinforced composite cementitious construction materials is described. In one embodiment, a

crosslinking component is mixed with a high molecular weight strengthening component and an inorganic cementitious material. The addition of the mixture to water causes a crosslinked molecular network to form within the hydrated, composite cementitious construction material. Both enhanced flexural strength and improved nail-pull resistance are shown, allowing a reduction in weight of the composite cementitious construction material compared to cementitious construction materials made according to other known methods.

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KWIC	Draw Des
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☐ 11. Document ID: US 20030035981 A1

AB: A novel gypsum board having antifungal properties is disclosed. The board comprises a gypsum core, front and back paper facings and an antifungal agent effective at inhibiting fungal growth. A preferred antifungal agent is cetyl pyridinium chloride. The antifungal agent can be present in the gypsum core and/or on one or both of the paper facings. In addition, the antifungal agent may be encapsulated in a material that releases the antifungal agent over time and/or upon exposure to moisture. Also disclosed are methods for preparing the aforementioned antifungal gypsum board.

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KWIC	Draws Des
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☐ 12. Document ID: US 20030031898 A1

AB: A novel gypsum board having antifungal properties is disclosed. The board comprises a gypsum core, front and back paper facings and an antifungal agent effective at inhibiting fungal growth. A preferred antifungal agent is cetylpyridinium chloride. The antifungal agent can be present in the gypsum core and/or on one or both of the paper facings. In addition, the antifungal agent may be encapsulated in a material that releases the antifungal agent over time and/or upon exposure to moisture. Also disclosed are methods for preparing the aforementioned antifungal gypsum board.

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KWIC	Draws Des
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☐ 13. Document ID: US 20020112651 A1

AB: A set gypsum composition and methods for the preparation thereof are disclosed. The set gypsum composition comprises a continuous phase of interlocking set gypsum matrix having an enhanced water voids volume and/or is prepared from a mixture (e.g., slurry) comprising an elevated ratio of water to calcined gypsum. Also disclosed is an article comprising the set gypsum composition.

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KWIC	Draw. Des
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☐ 14. Document ID: US 20020045074 A1

AB: The invention provides a set gypsum-containing product having increased resistance to permanent deformation and a method for preparing it comprising forming a mixture of a calcium sulfate material, water, and an appropriate amount of one or more enhancing materials chosen from condensed phosphoric acids, each of which comprises 2 or more phosphoric acid units; and salts or ions of condensed phosphates, each of which comprises 2 or more phosphate units. The mixture is then maintained under conditions sufficient for the calcium sulfate material to form a set gypsum material.

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KWIC	Draw. Des
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☐ 15. Document ID: US 6822033 B2

AB: A composition and method for treating a set gypsum-containing material are disclosed. The composition is formed from at least water at least one trimetaphosphate salt, at least one monobasic phosphate salt, and at least one acyclic polyphosphate salt having at least three phosphate units. The method comprises applying to a set gypsum material at least two of the following inorganic phosphates: at least one monobasic phosphate salt, at least one trimetaphosphate salt, and at least one acyclic polyphosphate salt having at least three phosphate units. The method can be for inhibiting re-calcination of a set gypsum containing material, and/or for enhancing the strength, surface hardness, paintability, abrasion resistance, and/or water erosion resistance of a set gypsum-containing material. Also disclosed is a method of making a set gypsum-containing material.

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KWIC	Draw. Des
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☐ 16. Document ID: US 6815049 B2

AB: A composition including, but not limited to, a mixture of a calcium sulfate material, water, and a tetrametaphosphate compound is disclosed. Desirably, the inclusion of the tetrametaphosphate compound (e.g., salt or ion) in a pre-set treatment of a calcium sulfate material enhances the resistance to permanent deformation (e.g., sag), dimensional stability, and/or compressive strength of the composition while also preferably avoiding any significant retardive effect on the rate of hydration of calcined gypsum to calcium sulfate dihydrate. A set gypsum-containing product and a method for producing a set gypsum-containing product having increased resistance to permanent deformation are also disclosed.

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KWIC	Draw. Des
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☐ 17. Document ID: US 6800361 B2

AB: The present invention relates to a gypsum board having a nonwoven liner and a gypsum core. The gypsum board of the present invention has a high work to break, resulting in a gypsum board product that has a high resistance to abuse in use. The gypsum board of the invention is also more flexible and more resistant to water and fire than paper-lined gypsum board, and does not contain nutrients that support mold growth.

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KWIC	Draw. Des
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☐ 18. Document ID: US 6800131 B2

AB: The invention provides a set gypsum-containing product having increased resistance to permanent deformation and a method for preparing it comprising forming a mixture of a calcium sulfate material, water, and an appropriate amount of one or more enhancing materials chosen from condensed phosphoric acids, each of which comprises 2 or more phosphoric acid units; and salts or ions of condensed phosphates, each of which comprises 2 or more phosphate units. The mixture is then maintained under conditions sufficient for the calcium sulfate material to form a set gypsum material.

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KWIC	Draw. Des
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☐ 19. Document ID: US 6773822 B2

AB: A novel gypsum board having antifungal properties is disclosed. The board comprises a gypsum core, front and back paper facings and an antifungal agent effective at inhibiting fungal growth. A preferred antifungal agent is cetyl pyridinium chloride. The antifungal agent can be present in the gypsum core and/or on one or both of the paper facings. In addition, the antifungal agent may be encapsulated in a material that releases the antifungal agent over time and/or upon exposure to moisture. Also disclosed are methods for preparing the aforementioned antifungal gypsum board.

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KWIC	Draw. Des
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☐ 20. Document ID: US 6680127 B2

AB: A novel gypsum board having antifungal properties is disclosed. The board comprises a gypsum core, front and back paper facings and an antifungal agent effective at inhibiting fungal growth. A preferred antifungal agent is cetylpyridinium chloride. The antifungal agent can be present in the gypsum core and/or on one or both of the paper facings. In addition, the antifungal agent may be encapsulated in a material that releases the antifungal agent over time and/or upon exposure to moisture. Also disclosed are methods for preparing the aforementioned antifungal gypsum board.

Full	Title	Citation	Front	Review	Classification	Date	Reference	Full Text	Abstract	Claims	KMIC	Draw. Des
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☐ 21. Document ID: US 6632550 B1

AB: The invention provides a set gypsum-containing product having increased resistance to permanent deformation and a method for preparing it comprising forming a mixture of a calcium sulfate material, water, and an appropriate amount of one or more enhancing materials chosen from condensed phosphoric acids, each of which comprises 2 or more phosphoric acid units; and salts or ions of condensed phosphates, each of which comprises 2 or more phosphate units. The mixture is then maintained under conditions sufficient for the calcium sulfate material to form a set gypsum material.

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KWIC	Draw. Des
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☐ 22. Document ID: US 6531210 B1

AB: A process for making an improved gypsum/wood fiber board is described. Products resulting from the process are also described. The process comprises adding a diisocyanate, specifically methylenediphenyldiisocyanate (MDI) to an aqueous slurry of calcium sulfate material and cellulosic fibers, where the MDI is added as an emulsion stable in the conditions in which the slurry is maintained. The process further includes passing the MDI containing slurry onto a flat porous forming surface to form a filter cake; removing a substantial portion of the water from the filter cake through the porous surface; pressing the filter cake to form a board and remove additional water; and drying the board to remove the remaining free water.

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KWIC	Draw. Des
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☐ 23. Document ID: US 6481171 B2

AB: A set gypsum composition and methods for the preparation thereof are disclosed. The set gypsum composition comprises a continuous phase of interlocking set gypsum matrix having an enhanced water voids volume and/or is prepared from a mixture (e.g., slurry) comprising an elevated ratio of water to calcined gypsum. Also disclosed is an article comprising the set gypsum composition.

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequence	Attachment	Claims	KMC	Draw. Des
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☐ 24. Document ID: US 6409824 B1

AB: A set gypsum-containing composition is disclosed. In one aspect, the set gypsum-containing composition includes an interlocking matrix of the set gypsum formed from at least calcined gypsum, water, and an enhancing material. The enhancing material can be selected from (i) an organic polyphosphonic compound, or a mixture thereof; (ii) a borate selected from ulexite colemanite, or a mixture thereof; or a mixture of (i) and (ii). In another aspect, the set gypsum-containing composition is treated with an enhancing material which can be selected from (i) an organic phosphonic compound or a mixture thereof; (ii) a borate selected from ulexite, colemanite, or a mixture thereof; (iii) a carboxylic compound or a mixture thereof; or a mixture of (i), (ii) and/or (iii).

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequence	Attachment	Claims	KMC	Draw. Des
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☐ 25. Document ID: US 6406537 B1

AB: A composition comprising calcined gypsum, trimetaphosphate ion, and a water-soluble linear polymer formed by the addition reaction of ethylene oxide and/or alkoxy-substituted ethylene oxide with water, having enhanced strength when set and exhibiting high plasticity and workability such that it readily can be applied to a substrate, is disclosed.

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequence	Attachment	Claims	KMC	Draw. Des
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☐ 26. Document ID: US 6387172 B1

AB: A set gypsum composition and methods for the preparation thereof are disclosed. The set gypsum composition comprises a continuous phase of interlocking set gypsum matrix having an enhanced water voids volume and/or is prepared from a mixture (e.g., slurry) comprising an elevated ratio of water to calcined gypsum. Also disclosed is an article comprising the set gypsum composition.

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequence	Attachment	Claims	KMC	Draw. Des
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☐ 27. Document ID: US 6342284 B1

AB: The invention provides a set gypsum-containing product having increased resistance to permanent deformation and a method for preparing it comprising forming a mixture of a calcium sulfate material, water, and

an appropriate amount of one or more enhancing materials chosen from condensed phosphoric acids, each of which comprises 2 or more phosphoric acid units; and salts or ions of condensed phosphates, each of which comprises 2 or more phosphate units. The mixture is then maintained under conditions sufficient for the calcium sulfate material to form a set gypsum material.

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KWIC	Drawings
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☐ 28. Document ID: US 6197107 B1

AB: The present invention is of a cementitious composition containing OPC, calcined gypsum, a source of amorphous silica and a source of amorphous alumina. The ratio of calcium sulfate hemihydrate to OPC is 0.7:1.0 to 1.4:1.0, the ratio of amorphous silica and amorphous alumina to OPC is 0.26:1.0 to 0.4:1.0, and the ratio of amorphous alumina to amorphous silica is 0.3:1.0 to 1.5:1.0. The cementitious composition, by itself and mixed with aggregates, is fast-setting and exhibits good early compressive strength and very high compressive strength after hydration. Despite the high content of calcium sulfate relative to prior art OPC formulations, the cementitious composition according to the present invention is essentially waterproof and exhibits excellent strength characteristics, even after 2 years under water. The use of calcined gypsum in place of alumina cement or even OPC is of great economic advantage, and in addition, provides the cementitious composition with quick-setting characteristics.

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KWIC	Drawings
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☐ 29. Document ID: US 6171388 B1

AB: A composition of matter comprising

(a) gypsum ($\text{CaSO}_4 \cdot 2\text{H}_2\text{O}$);

(b) one or more naturally occurring or synthetic latex polymers; and

(c) one or more nonionic surfactants; wherein said composition of matter has a density less than 0.64 g/cm³ and wherein wallboard produced from said composition of matter satisfies the criteria of ASTM Methods C-36 and C-473 is provided.

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KWIC	Drawings
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☐ 30. Document ID: US 6106607 A

AB: A water repellent composition for gypsum containing masonry materials is disclosed. The composition contains as organohydrogensiloxane and polyvinyl alcohol, the combination of which provides unexpectedly high water repellency.

Full	Title	Citation	Front	Review	Classification	Date	Reference	Searches	Abstracts	Claims	KWIC	Draw. Des
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☐ 31. Document ID: US 6010596 A

AB: An improved water resistant gypsum board is made by adding an aqueous wax emulsion containing a cationic surfactant to an aqueous slurry containing calcium sulfate and host particles at a slurry temperature which maintains calcium sulfate hemihydrate crystals. The wax emulsion is stable at the temperature of slurry which maintains the calcium sulfate hemihydrate. The slurry is then dewatered and rehydrated to form a gypsum board and dried at a temperature to melt the wax.

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequence	Attachment	Claims	KWIC	Draw. Des
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☐ 32. Document ID: US 5817262 A

AB: A process is described for making a gypsum board having improved water resistance. The resulting gypsum board products are also described. The process comprises adding an aqueous siloxane emulsion to an aqueous slurry of a calcium sulfate material and host particles, where the siloxane emulsion is stable under the condition in which the slurry is maintained. The process further includes passing said siloxane containing slurry onto a flat porous forming surface to form a filter cake; removing a substantial portion of the water from the filter cake through the porous surface; pressing the filter cake to form a board and remove additional water; and drying the board to remove the remaining free water and to cause the core of the board to reach a temperature sufficient to cure the siloxane.

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequence	Attachment	Claims	KWIC	Draw. Des
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☐ 33. Document ID: US 5330691 A

AB: Glass fibre reinforced plasterboard including a gypsum matrix of high density with embedded staple glass fibres therewith forming a pressure resistant solid body frame in which are embedded a plurality of very small hollow spaces of 5-350 microns in diameter, produced by a fine-pore foam or at least partially by small particles of non-porous and non-water absorbing fillers. During the manufacturing process of such glass fibre reinforced gypsum board, the gypsum and the fibre pieces are given only so much water that the water/gypsum ratio does not exceed 0.6, whereafter a foam and/or pourable or free-flowing fillers are added in

such quantities that the apparent density of the entire board is at least 20% smaller than the density of the bonding means component of the matrix, and the paste is subjected while being formed to a vibration.

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KWC	Draw. Des
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☐ 34. Document ID: US 5320677 A

AB: An improved composite material is produced by mixing gypsum and host particles of a stronger substance, such as wood fibers, in a dilute slurry; heating the slurry, under pressure, to convert the gypsum to calcium sulfate alpha hemihydrate; and substantially dewatering the hot slurry before rehydrating the hemihydrate back to gypsum. The resulting material is a homogeneous mass comprising gypsum crystals physically interlocked with the discrete host particles.

According to a further aspect of the invention, an improved wallboard, having fire resistance, dimensional stability and excellent strength properties, is produced by compressing the composite mass before hydrating it to a final set.

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KWC	Draw. Des
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☐ 35. Document ID: US 5173364 A

AB: Glass fibre reinforced plasterboard comprising a gypsum matrix of high density with embedded staple glass fibres therewith forming a pressure resistant solid body frame in which are embedded a plurality of very small hollow spaces of 5-350 .mu.m diameter, produced by a fine-pore foam or at least partially by small particles of non-porous and non-water absorbing fillers. During the manufacturing process of such glass fibre reinforced gypsum board, the gypsum and the fibre pieces are given only so much water that the water/gypsum ratio does not exceed 0.6, whereafter a foam and/or pourable or free-flowing fillers are added in such quantities that the apparent density of the entire board is at least 20% smaller than the density of the bonding means component of the matrix and the paste are subjected while being formed, to a vibration.

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KWC	Draw. Des
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☐ 36. Document ID: US 4722866 A

AB: A composition useful as the core of fire resistant gypsum board and comprising a major amount of set calcined gypsum and minor amounts of whisker fibers, glass fibers and clay.

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KVMC	Draw. Des
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☐ 37. Document ID: US 4664707 A

AB: A composition useful as the core of fire resistant gypsum board and comprising a major amount of set calcined gypsum and minor amounts of whisker fibers, glass fibers and clay.

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KVMC	Draw. Des
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☐ 38. Document ID: US 4403006 A

AB: A gypsum board consisting essentially of a monolithic cellular core of set gypsum and a fibrous cover sheet encasement provided with improved properties by the gypsum core having incorporated therein coal fly ash in an amount of about 1-20% by weight of stucco in the gypsum slurry used in forming the board and method of producing the board are disclosed.

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KVMC	Draw. Des
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☐ 39. Document ID: US 4265979 A

AB: A fiber-reinforced cementitious sheet is formed by first co-mixing in an air current reinforcing fibers such as glass fibers, and cementitious mineral materials in finely particulate form such as calcium sulfate hemihydrate, both in substantially dry form, depositing the mixture on a moving foraminous surface by means of the air current to form a sheet, applying water as by spraying in at least an amount which is stoichiometrically sufficiently to hydrate the calcium sulfate hemihydrate to the dihydrate form and to provide the necessary degree of plasticity to the mixture, densifying the sheet by compression, and setting and drying the sheet. A pair of sheets may be utilized as face sheets and, prior to setting, combined with a core formed of for example a calcium sulfate hemihydrate slurry, and the sheets and core then set and dried to form a paper-free gypsum board having excellent strength, surface hardness, and fire-resistant properties.

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KVMC	Draw. Des
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☐ 40. Document ID: US 4233368 A

AB: A fiber-reinforced cementitious sheet is formed by first co-mixing in an air current reinforcing fibers such as glass fibers, and cementitious mineral materials in finely particulate form such as calcium sulfate hemihydrate, both in substantially dry form, depositing the mixture on a moving foraminous surface by means of the air current to form a sheet, applying water as by spraying in at least an amount which is stoichiometrically sufficient to hydrate the calcium sulfate hemihydrate to the dihydrate form and to provide the necessary degree of plasticity to the mixture, densifying the sheet by compression, and setting and drying the sheet. A pair of sheets may be utilized as face sheets and, prior to setting, combined with a core formed of for example a calcium sulfate hemihydrate slurry, and the sheets and core then set and dried to form a paper-free gypsum board having excellent strength, surface hardness, and fire-resistant properties.

Full	Title	Citation	Front	Review	Classification	Date	Reference	Abstracts	Abstracts	Claims	KMIC	Draw. Des
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Terms	Documents
L1 and (gypsum adj matrix)	48

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☐ 41. Document ID: US 4133928 A

AB: Fibre reinforced composites of cementitious materials or gypsum are reinforced with pre-combined mixtures of strong reinforcing fibres e.g., glass or steel, and water absorbent fibres, e.g., cotton. Examples of composites are cement pipes, wall boards, etc.

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KMC	Draw. Des
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☐ 42. Document ID: US 4076884 A

AB: Fibre reinforced composites of cementitious materials or gypsum are reinforced with pre-combined mixtures of strong reinforcing fibres e.g., glass or steel, and water absorbent fibres, e.g., cotton. Examples of composites are cement pipes, wall boards, etc.

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KMC	Draw. Des
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☐ 43. Document ID: US 3988199 A

AB: A perlite insulation board is disclosed herein and includes, as conventional ingredients, expanded perlite, organic fiber and binder, the perlite, being the largest single ingredient, by dry weight, in the board. The insulation board also includes gypsum in an amount less than the perlite but preferably in an amount sufficient to form a gypsum matrix throughout the board. A method of making a perlite insulation board of the general type just described is also disclosed herein.

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KMC	Draw. Des
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☐ 44. Document ID: US 3944698 A

AB: A specially prepared fiber reinforcement and improved gypsum wallboard are disclosed. The fiber reinforcement includes a multiplicity of relatively long fibers which are disposed at the interface of the core and cover sheets of the wallboard and are adhesively bonded to the cover

sheets and incorporated predominantly into the portion of the core immediately adjacent to the cover sheets.

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KWIC	Draw. Des
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☐ 45. Document ID: US 3903879 A

AB: Fibre reinforced composites of cementitious materials or gypsum are reinforced with pre-combined mixtures of strong reinforcing fibres e.g., glass or steel, and water absorbent fibres, e.g., cotton. Examples of composites are cement pipes, wall boards, etc.

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KWIC	Draw. Des
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☐ 46. Document ID: JP 09227207 A

AB: PROBLEM TO BE SOLVED: To remarkably improve the adhesiveness between the chip and gypsum material, the flexural strength and the reaction force against the pulling of scew and nail and to provide a waste disposal method.

SOLUTION: This composite gypsum board 1 is formed by mixing a fiber into a gypsum material and meets the following requirements. Namely, (1) chips 3 are mixed in the filler as the essential component, (2) the chips are oriented almost in parallel with a plane vertical to the thickness direction of the board 1, and (3) the chip is coated with a coupling agent and an aqueous adhesive is blended in a gypsum matrix 2.

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Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KWIC	Draw. Des
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☐ 47. Document ID: EP 451503 A, ES 2104622 T3, DE 4011793 C, US 5173364 A, EP 451503 A3, US 5330691 A, EP 451503 B1, DE 59108821 G

AB: Glass fibre-reinforced plasterboard has a plaster matrix, made from hemihydrate (I) and water, with a density of at least 1.35 g/cc and at least 25% greater than the density of the finished board; reinforcing glass fibres (II) with a dia. of 5-20 microns and length of 2-20 mm, uniformly distributed in the board in an amt. of 0.3-3.0 wt.%; and numerous cavities, each with a dia. of 5-350 microns, which are uniformly distributed in the board and amt. to at least 20% of the total vol. of the board.

The glass fibres have a dia. of 8-15 microns and length of 3-18 (7) mm;

and are used in an amt. of 1.-2.0 wt.%. The cavities are formed (partly) by small bubbles of gas with an average dia. of ca. 50 microns, pref. surrounded by foam-forming material, esp. surfactant or PVA; or the cavities are formed (partly) by small particles of non-porous solid fillers, which do not absorb water and have a max. dia. of max. 350 microns, pref. glass or synthetic microballoons, fly ash or hollow materials produced from fly ash.

USE/ADVANTAGE - The plasterboard combines high strength with low total wt. and can be made easily and continuously. Addn. of foam or nonporous hollow fillers reduces the viscosity of the mix to a level at which it can be worked easily in a conventional rotary mixer.

Glass fibre-reinforced plaster board comprises (a) a plaster matrix which is produced from hemihydrate and water, the density of which is at least 1.35 g/cm³ and which is at least 25% greater than the density of the finished board; (b) glass fibres as reinforcement having a dia. of 5-20 microns and a length of 2-20 mm and which are dispersed uniformly in the board in amt. of 0.3-3.0 wt. % of the finished board; and (c) a number of cavities which are uniformly dispersed in the solid material skeleton comprising (a) and (b), each of the single cavities having a dia. of 5-350 microns, the total cavities making up a vol. of at least 20% of the total, finished board.

Pref. the cavities are at least partly formed of small gas bubbles having a mean dial of about 50 microns and are pref. surrounded by a foam-forming material, esp. a polyvinyl alcohol.

ADVANTAGE - New board has the same high strength in each direction, has a low total wt. and can be easily processed. @(5pp)

Process for continuous manufacture of the fibreglass reinforced gypsum boards which contain gypsum, glass fibres and/or solid filler materials, and in which the gypsum, the glass fibres and, if appropriate, the filler materials are continuously mixed with a measured volume of water and the produced paste is poured under vibration onto a continuously moved surface where it is formed dried and cut into a desired shape, characterised in that semi-hydrate gypsum and short fibreglass pieces are continuously mixed in a rotary mixer with a liquefier and only so much water that the weight ratio of water/gypsum does not exceed 0.6, and during mixing a separately produced foam is added with an apparent density of maximum 0.12 g/cm³ at such quantity that the apparent density of the entire board is at least 20% smaller than the density of the gypsum matrix, and the paste which is poured onto the continuously moved surface is subjected to a vibration whilst spreading and forming.

Wall board having uniform isotropic high break resistance, is a single uniform layer of generally uniform density consisting of (pref.) (A) a matrix of gypsum hemihydrate and water having a density at least 1.35 g/cm³, which is at least 25% higher than that of the density of the layer, and with the water:gypsum ratio being 0.4-0.55, (B) glass fibres 5-20 (8-15) micron dia. and 2-20 (3-18), esp. 7 mm long uniformly dispersed throughout the matrix at a quantity 9,3-3.0 (1.0-2.0) wt.% and (C) numerous voids uniformly dispersed throughout the matrix and glass fibres, having a dia. 5-350 (50) microns and forming at least 20 vol% of the board.

The voids are pref. (a) gas bubbles of dia. 50 micron and are surrounded

by a foam forming material, esp. polyvinyl alcohol or (b) small particles of non-porous, non-water absorbing filler, esp. of spherical glass or plastic material, e.g. fly ash.

ADVANTAGE - More homogeneous board, having virtually equal rigidity in all directions. Has low wt. and can be readily processed. Board can be produced by continuous process.

Producing glass fibre reinforced gypsum boards comprising a single uniform layer of body having a generally uniform density, comprises (a) forming a water-gypsum paste by adding water to a solid mixt. to obt'd. a water to solid mixt. ratio of 0.4-0.6, the solid mixt. comprising gypsum, glass fibre and a non-water absorbing filler material, having a particle size of no larger than 350 microns, an apparent density of no more than 0.7 g/cm³, and being added in an amt. not to exceed 20 wt.% of the gypsum board; (b) dispersing the solid mixt. in the water of the paste in an essentially uniform manner to reduce viscosity and density of the paste; (c) pouring the paste into a form and subjecting the paste to vibrations to spread and shape the paste in the form; and (d) cutting the paste into the gypsum board and subsequently drying the gypsum board.

USE - The gypsum boards can be adapted for use as a wallboard having a uniform isotropic high break resistance.

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KWC	Draw. Des
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☐ 48. Document ID: US 2965528 A

AB: No data.

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KWC	Draw. Des
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☐ 1. Document ID: US 6106607 A

AB: A water repellent composition for gypsum containing masonry materials is disclosed. The composition contains as organohydrogensiloxane and polyvinyl alcohol, the combination of which provides unexpectedly high water repellency.

Full	Title	Citation	Front	Review	Classification	Date	Reference	Abstracts	Abstracts	Claims	KWC	Draw. Des
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Terms	Documents
L2 and silane	1

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